



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
21.10.2015 Bulletin 2015/43

(51) Int Cl.:
B05C 17/02 (2006.01) **B25G 1/02** (2006.01)
B25C 11/00 (2006.01)

(21) Application number: **15163544.8**

(22) Date of filing: **14.04.2015**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
MA

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(30) Priority: **16.04.2014 NL 2012641**

(54) **TOOL, ASSEMBLY AND METHOD FOR REMOVING A PAINT ROLLER FROM A PAINT ROLLER HOLDER**

(57) The invention relates to a tool, assembly and method for removing a paint roller from a paint roller holder. The tool according to the invention comprises:

- a tool handgrip;
- a contact surface connected via a tool arm to the handgrip and configured to push a paint roller off a paint roller-holding outer end of the paint roller holder; and
- a groove arranged in the arm and configured to receive at least a part of an inclining connecting arm of the paint roller holder located between the paint roller-holding outer end and a handle on another outer end of the paint roller holder, wherein the tool is configured such that a rotating movement of the arm can be combined with sliding of the arm over the connecting arm while the paint roller is being pushed off.

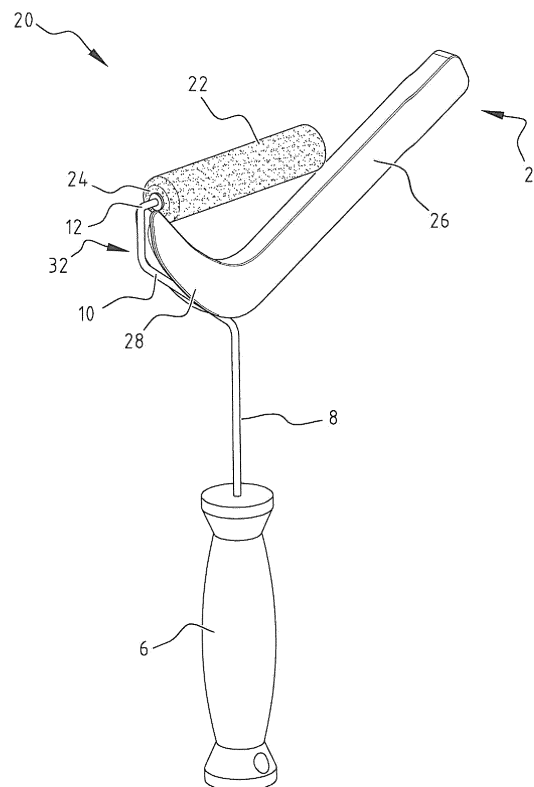


FIG. 3

Description

[0001] The present invention relates to a tool with which a paint roller can be removed from a paint roller holder. Paint rollers comprise a paint roller or paint brush placed on a paint roll holder and are used to apply paint to a surface by means of rolling.

[0002] Paint rollers known in practice are usually a steel bracket which is provided on a first outer end with a handle and provided on the other second outer end with a free outer end onto which a paint roller can be pushed or snapped. Such paint rollers are for instance made of a foam rubber or are so-called fleece rollers. The bracket of the paint roller holder is usually a bent bracket, wherein the free outer end extends substantially at right angles to the direction in which the other outer end with the handle extends. In order to arrange the paint roller as centrally as possible relative to the handle after placing, the bracket is provided with two angles or bends and an oblique side which is arranged therebetween and lies at an angle to the two outer ends.

[0003] A problem with existing paint rollers is that, after painting or lacquering, the paint roller has to be removed from the free outer end of the paint roller holder. Some force is required here. The force required can increase because paint residues are present between the paint roller and the bracket.

[0004] Auxiliary tools are also known from US 5546625 and US 5440853 for removing paint rollers from a paint roller holder.

[0005] Also known from WO 2012121587 is a paint roller holder with auxiliary bracket for removing a paint roller. The auxiliary bracket is provided here for rotation on the holder. A problem with such a holder is that the force to be transmitted to the paint roller during removal is not transmitted along a straight line. Additional friction forces also occur which result for instance in extra paint splashes. The arm length of the auxiliary bracket is also limited due to the construction.

[0006] Although a user such as a painter need not touch the paint roller by hand when using these tools, they do not remedy the problems associated with producing the required force. With these auxiliary tools consisting of a plate with a recess which is placed round the roller so that it can be slid off the bracket there is also the risk of the roller being pressed out of line relative to the bracket.

[0007] Known from US 4584752 and US 5283923 are alternative auxiliary tools with which it is possible to exert an additional force in order to remove a paint roller from a paint roller holder. These tools require additional means, so cannot be applied in simple manner.

[0008] The present invention has for its object to provide a tool for removing a paint roller from a paint roller holder with which removal of the paint roller can be performed in simple and effective manner.

[0009] This object is achieved with the tool according to the invention for removing a paint roller from a paint

roller holder, the tool comprising:

- a tool handgrip;
- a contact surface connected via a tool arm to the handgrip and configured to push a paint roller off a paint roller-holding outer end of the paint roller holder; and
- a groove arranged in the arm and configured to receive at least a part of an inclining connecting arm of the paint roller holder located between the paint roller-holding outer end and a handle on another outer end of the paint roller holder, wherein the tool is configured such that a rotating movement of the arm can be combined with sliding of the arm over the connecting arm while the paint roller is being pushed off.

[0010] The tool is provided with a handgrip, which is inter alia understood to mean an engaging position on the tool where a user can exert a force on the tool by hand. Such a handgrip is connected via the tool arm to a contact surface on the other second outer end of the tool. By configuring the contact surface to engage on a paint roller, force can be transmitted by the user via this contact surface on the paint roller via the handgrip of the tool. The paint roller is pushed off the free outer end of the bracket of the paint roller holder by the transmitted force. An effective and controlled removal of the paint roller from the paint roller holder is hereby possible.

[0011] The tool according to the invention is provided with a tool arm in which a groove is arranged. This groove takes the form of a longitudinal groove and runs in longitudinal direction of the arm. The groove is configured such that a part of the inclining connecting arm of the paint roller holder can be received therein. This inclining connecting arm is located between the paint roller-holding outer end of the bracket of the paint roller holder and the other outer end of the paint roller holder on which a handle is arranged. This bracket part positioned obliquely relative to the directions in which the outer ends of the paint roller holder extend is required to enable central positioning of the paint roller after it has been placed. Such a central positioning simplifies the uniform application of paint or lacquer to a surface. Arranging the groove in the arm avoids the tool detaching from the bracket during use. Direction is hereby also imparted to the force by means of the sliding movement of the paint roller during removal thereof from the bracket.

[0012] Configuring the tool according to the invention such that a rotating movement of the arm can be combined with sliding of the arm over the connecting arm while the paint roller is being pushed off the holder achieves that the contact surface of the tool is moved substantially along a straight line substantially parallel to the paint roller-holding outer end of the bracket. The force required for pushing off is hereby transmitted in effective manner. Pushing out of line is also avoided. In addition, friction and/or sliding of the contact surface relative to

the paint roller is hereby avoided. This prevents paint splashes and other problems during removal of the paint roller.

[0013] In a currently preferred embodiment a right-handed person will usually hold the handle of the paint roller holder with the left hand and position the tool relative to the paint roller holder with the right hand. The groove of the tool arm is placed here against or over the inclining side of the bracket of the paint roller holder and the contact surface of the tool is brought into contact with an end surface of the paint roller. The handgrip of the tool is then moved with a kind of rotation movement, whereby the force is converted via the lever of the connecting arm to a pushing or sliding movement of the contact surface against the paint roller.

[0014] With the tool according to the invention the paint roller is removed in efficient manner from the paint roller holder with a controllably exerted force so that for instance the number of paint splashes is significantly reduced. A lever effect can also be realized via the connecting arm, whereby a user can exert sufficient force in simple manner. By providing a longitudinal groove in the connecting arm the tool is also prevented from detaching from the paint roller holder so that the tool remains in the correct position during removal with the exertion of the necessary force.

[0015] In an advantageous preferred embodiment according to the present invention the contact surface of the tool is provided with a recess.

[0016] Providing the contact surface with a recess enables the contact surface to remain better positioned relative to the paint roller. The recess is preferably shaped here such that the paint roller-holding outer end of the paint roller bracket can be received therein. The recess is for instance provided with a groove in the contact surface with which the contact surface can slide relatively over the bracket during removal of the paint roller. This achieves that the tool can remain positioned in simple manner. It has been found that particularly the combination of providing the recess in the contact surface and the longitudinal groove in the tool arm provides a proper correct positioning of the tool relative to the paint roller holder.

[0017] In an advantageous preferred embodiment according to the present invention the groove arranged in the tool arm is provided extending from the contact surface.

[0018] By arranging the groove in longitudinal direction of the tool arm the bracket remains at least partially positioned in the groove during the whole movement of the tool during the removal of the paint roller from the paint roller holder. During the rotation movement of the tool handgrip a user can as it were make a kind of unrolling movement and/or sliding-off movement with the tool over the bracket such that the contact surface simultaneously performs a pushing movement along the free outer end of the paint roller holder.

[0019] The groove preferably extends beyond an angle

arranged between the tool handgrip and the tool arm. Providing an angle enables the handgrip to make a kind of rotation movement as a result of the force exerted by the user thereon during removal of the paint roller from the bracket. The tool here also undergoes something of a sliding or gliding movement over the bracket so that the contact surface remains in position relative to the paint roller. Using the longitudinal groove in the connecting arm the user can push the tool in simple manner here against the side arm of the bracket and, using the currently preferred recess in the contact surface, against the free outer end of the paint roller holder where the paint roller is arranged. A good contact is maintained between tool and paint roller holder during the whole movement by having the groove extend to some extent beyond the angle.

[0020] In a further advantageous preferred embodiment according to the present invention the contact surface lies at an angle of contact of at least 90° with the tool handgrip.

[0021] By realizing an angle of contact the user can remove a paint roller from the bracket by means of a simple rotating and pushing movement of the tool against the bracket. The angle of contact preferably lies in the range of 100°-120°, and the angle of contact most preferably amounts to about 110°. It has been found that the angle of contact preferably realized in the tool is related to the angle provided in the bracket of the paint roller holder. The force is hereby transmitted in effective manner from the user to the paint roller.

[0022] In a further advantageous preferred embodiment according to the present invention the angle arranged between the tool arm and the tool handgrip is provided with a radius of curvature in the range of 1.4 to 4 cm.

[0023] Providing a radius of curvature avoids acute angles and creates and maintains a gradual controlled movement during removal of the paint roller.

[0024] In a further advantageous preferred embodiment according to the present invention the groove is provided with a first groove depth close to the contact surface and a second smaller groove depth for receiving at least a part of the inclining connecting arm of the paint roller holder.

[0025] A sufficient groove depth is hereby provided close to the contact surface to make it possible to insert the tool according to the invention in optimal manner behind the paint roller for removal. The groove depth preferably lies here in the range of about 6 to 10 mm, preferably about 8 mm. The smaller groove depth on the one hand provides for a good guiding of the bracket during the combined rotation and sliding movement and is on the other not so deep that the required movement becomes too great. The smaller groove depth preferably lies here in the range of about 4 to 6 mm, preferably about 5 mm.

[0026] In a further advantageous preferred embodiment according to the present invention the tool arm is

provided with a recess such that the tool can be applied on a wider range of paint roller holders.

[0027] Providing an additional recess, wherein the groove is as it were interrupted over a short distance at or close to the angle in the tool, achieves that the tool can be applied over a greater variation of dimensions and embodiments of paint roller holders.

[0028] The invention also relates to an assembly of a paint roller holder and a tool as described above.

[0029] Such an assembly provides the same effects and advantages as stated for the tool.

[0030] The assembly can further be provided in advantageous manner with a number of paint rollers, if desired of different types, so that with one purchase the user has all required materials at his/her disposal.

[0031] The invention further relates to a method for removing a paint roller from a paint roller holder, the method comprising the steps of:

- providing a tool as described above;
- bringing the contact surface of the tool into contact with an outer end of the paint roller;
- moving the tool handgrip such that the rotation movement of the handgrip is converted via the arm to a movement of the paint roller off the paint roller-holding outer end of the paint roller holder, wherein the rotation movement is combined with sliding of the arm over the connecting arm while the paint roller is being pushed off.

[0032] Such a method provides the same effects and advantages as stated for the tool and the assembly.

[0033] During removal of the paint roller the groove in the tool arm preferably remains substantially in contact with the paint roller holder. A controlled movement hereby remains possible during removal of the paint roller.

[0034] Further advantages, features and details of the invention are elucidated on the basis of preferred embodiments thereof, wherein reference is made to the accompanying drawings, in which:

- Figures 1 and 2 show views of the tool according to the invention;
- Figure 3 shows a view of the tool of figure 1 with a paint roller;
- Figures 4 and 5 show views of the removal of a paint roller with the tool of figures 1-3; and
- Figure 6 shows a view of an alternative embodiment according to the invention.

[0035] Tool 2 (Figures 1-5) can be used in combination with paint roller holder 4. Paint roller holder 4 is provided on a first outer end with a handle 6 and on the outer end 8 with a steel bracket. Bracket outer end 8 is connected via inclining connecting arm 10 to the free outer end 12 of paint roller holder 4. Three angles 14, 16, 18 are arranged in the shown embodiment between outer ends 8, 12.

[0036] In the shown embodiment tool 2 is particularly suitable for relatively small paint roller holders of for instance 5, 10, 18 and 25 cm. In the shown embodiment the diameter of bracket 8, 10, 12 is about 6 mm. Such paint roller holders 4 are used, among other purposes, for lacquer rollers, wall paint/latex rollers for water-based paint, and acryl rollers. The width of paint rollers 22 is about 10 cm in the shown embodiment. It will be apparent that other dimensions of paint rollers 22 are also possible. Also expressly possible is the use of tool 2 on other sizes of brackets 8, 10, 12 of for instance 8 mm for, among others, ceiling rollers.

[0037] Angle 14 is about 90° here. Angles 16, 18 are substantially equal to each other and the size of the angles also depends on the size of paint roller holder 4. Angles 16, 18 thus amount in the shown embodiment to for instance about 40°. It will be apparent that other angles 16, 18 are also possible.

[0038] Assembly 20 is formed by tool 2 and paint roller holder 4. Assembly 20 optionally also consists of one or more paint rollers 22 which can be arranged on outer end 12 of paint roller holder 4. Paint roller 22 is provided with a side surface 24 on which tool 2 can engage during removal of paint roller 22 from bracket 12 of paint roller holder 4.

[0039] Tool 2 is provided with a handgrip or hand position 26 on a first outer end thereof. Handgrip 26 is connected via tool arm 28 to contact surface 30 which is in contact with side surface 24 of paint roller 22 during removal. In the shown embodiment contact surface 30 is provided with a groove or recess 32 in which bracket 12 can be arranged. Tool arm 28 is also provided with longitudinal groove 34 in which inclining arm 10 of paint roller holder 4 can be received. Contact surface 30 is provided at an angle relative to handgrip 26. Tool 2 is further provided with angle 36. Angle 36 preferably has a relation to angles 16, 18 for the best possible operation of tool 2 for the purpose of removing paint roller 22 from paint roller holder 4. In the shown embodiment angle 36 amounts to about 100°.

[0040] Tool 102 (figure 6) is provided with outer end 104 with handgrip 106. A suspension eye or opening 108 is also provided in handle 110. Handle 110 is connected via arm 112 to outer end 114. The components and operation of tool 102 are the same as those of the above described embodiment 2. Hook/recess 118 is arranged at angle 36. An even better connection to a brush holder can hereby be obtained such that tool 102 can be applied on an even wider range of holders. At outer end 114 the groove is provided with depth d1 which is slightly greater than depth d2 over the rest of the groove length. d1 amounts for instance to about 6-10 mm, preferably about 8 mm for the purpose of inserting tool 102 properly and as fully as possible behind paint roller 22, and d2 amounts to about 4-6 mm, preferably about 5 mm so as on the one hand to enable good guiding of the bracket and on the other not to allow the required movement to become too great.

[0041] Tool 2, 102 can be manufactured from different materials, including wood, plastic and metal.

[0042] For the purpose of removing paint roller 22 from bracket 12 the tool 2, 102 is positioned by the user with groove 34 on inclining bracket part 10 of paint roller holder 4. Contact surface 30 of tool 2 is brought into contact with side surface 24 of paint roller 22. By applying a kind of rotation movement to handgrip 26 the tool arm 28 will push against side bracket 10 and rotate to some extent, whereby contact surface 30 pushes side surface 24 off bracket 12. Paint roller 22 is hereby removed from paint roller holder 4. During the movement of paint roller 22 relative to paint roller holder 4 the tool 2 will unroll and/or slide to some extent relative to inclining connecting arm 10 of paint roller holder 4. During the movement recess 32 in contact surface 30 is pressed in the shown embodiment against outer end 12 of paint roller holder 4. This results in an effective removal of paint roller 22 from paint roller holder 4.

[0043] The present invention is by no means limited to the above described preferred embodiments thereof. The rights sought are defined by the following claims, within the scope of which many modifications can be envisaged. It is thus possible for instance to provide handgrip or hand position 26 as a handle, for instance of plastic. It is for instance also possible to provide tool 2 with indications or grooves or ridges for the purpose of indicating the location on tool 2 where a user can place a hand or fingers in order to facilitate removal of a paint roller 22 from holder 4.

Claims

1. Tool for removing a paint roller from a paint roller holder, comprising:

- a tool handgrip;
- a contact surface connected via a tool arm to the handgrip and configured to push a paint roller off a paint roller-holding outer end of the paint roller holder; and
- a groove arranged in the arm and configured to receive at least a part of an inclining connecting arm of the paint roller holder located between the paint roller-holding outer end and a handle on another outer end of the paint roller holder, wherein the tool is configured such that a rotating movement of the arm can be combined with sliding of the arm over the connecting arm while the paint roller is being pushed off.

2. Tool as claimed in claim 1, wherein the contact surface is provided with a recess.

3. Tool as claimed in claim 2, wherein the recess is shaped such that the paint roller-holding outer end of the paint roller holder can be received therein.

4. Tool as claimed in claim 1, 2 or 3, wherein the groove arranged in the tool arm extends from the contact surface.

5. Tool as claimed in claim 4, wherein the groove extends beyond an angle arranged between the tool handgrip and the tool arm.

6. Tool as claimed in one or more of the foregoing claims, wherein the contact surface lies at an angle of contact of at least 90° with the tool handgrip.

7. Tool as claimed in claim 6, wherein the angle of contact lies in the range of 100°-120°, and preferably amounts to about 110°.

8. Tool as claimed in one or more of the foregoing claims, wherein the angle arranged between the tool arm and the tool handgrip is provided with a radius of curvature in the range of 1.5 to 4 cm.

9. Tool as claimed in one or more of the foregoing claims, wherein the groove is provided with a first groove depth close to the contact surface and a second smaller groove depth for receiving at least a part of the inclining connecting arm of the paint roller holder.

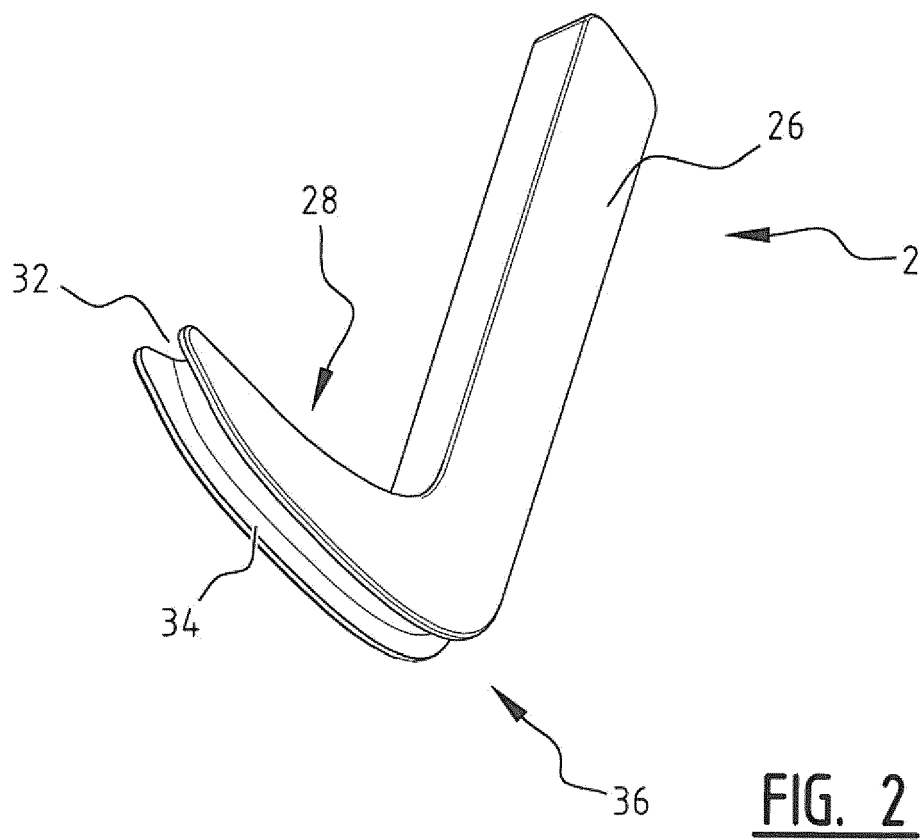
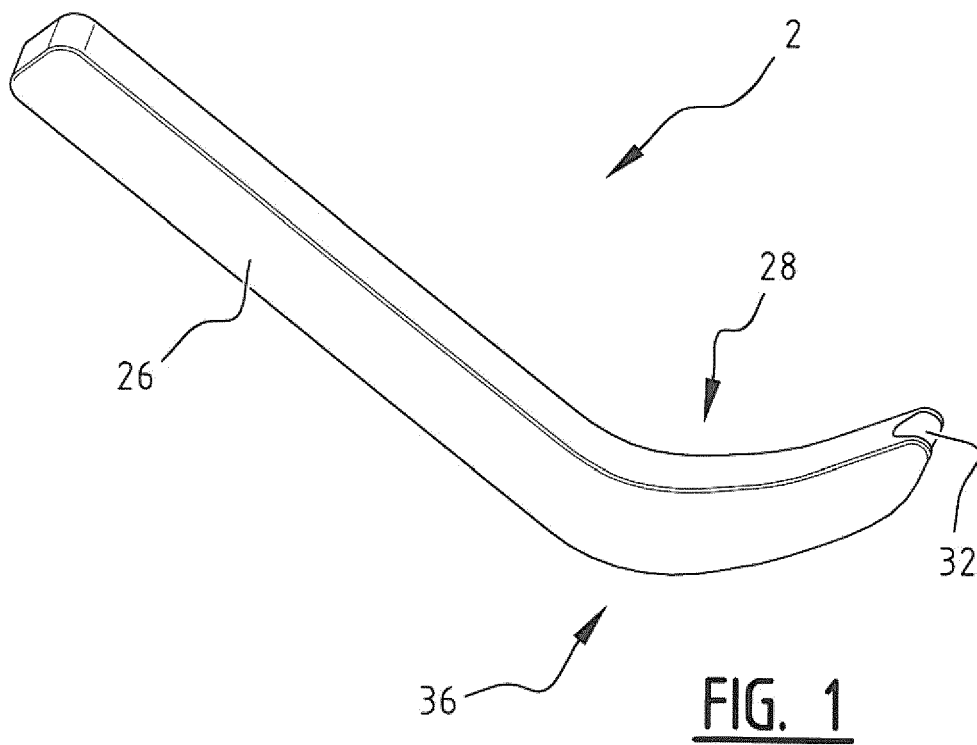
10. Tool as claimed in one or more of the foregoing claims, wherein the tool arm is provided with a recess such that the tool can be applied on a wider range of paint roller holders.

11. Assembly of paint roller holder and tool as claimed in one or more of the foregoing claims.

12. Method for removing a paint roller from a paint roller holder, comprising the steps of:

- providing a tool as claimed in one or more of the foregoing claims;
- bringing the contact surface of the tool into contact with an outer end of the paint roller;
- moving the tool handgrip such that the rotation movement of the handgrip is converted via the arm to a movement of the paint roller off the paint roller-holding outer end of the paint roller holder, wherein the rotation movement is combined with sliding of the arm over the connecting arm while the paint roller is being pushed off.

13. Method as claimed in claim 12, wherein during removal of the paint roller the groove in the tool arm remains substantially in contact with the paint roller holder.



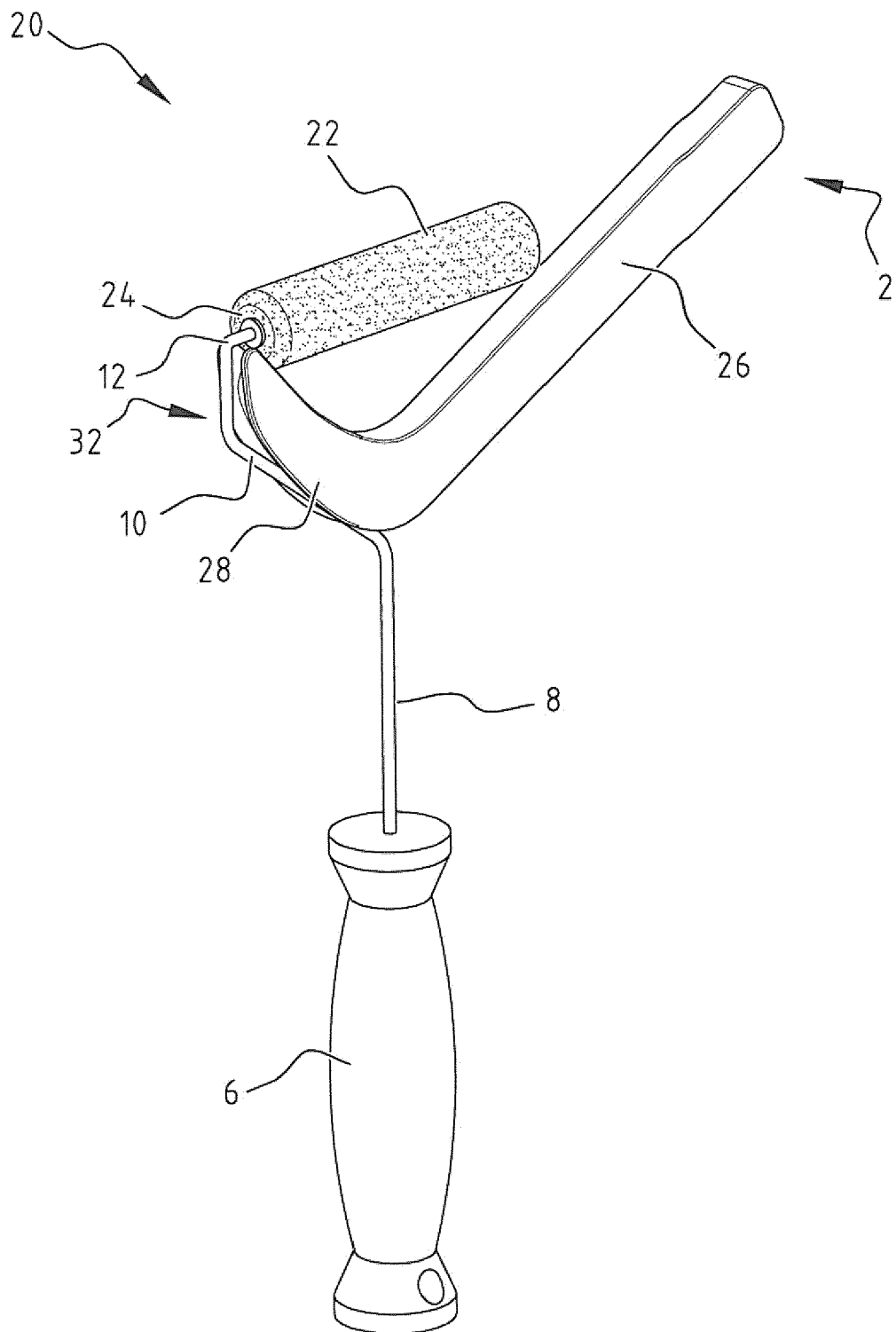


FIG. 3

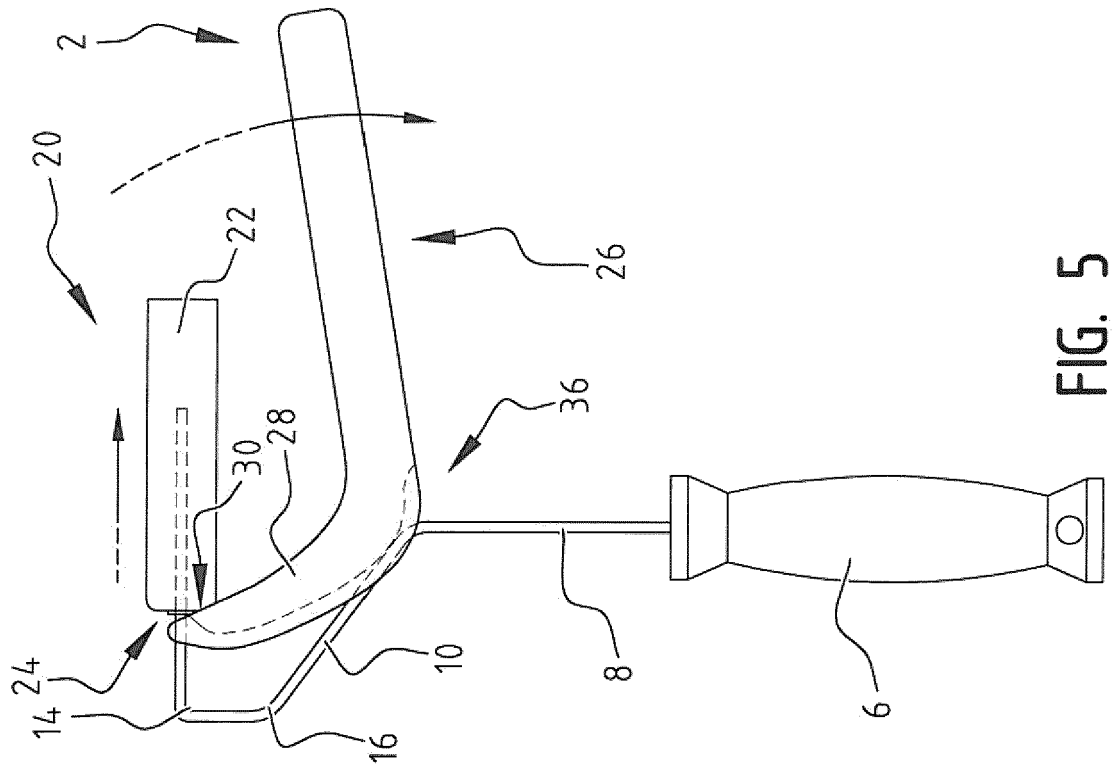


FIG. 5

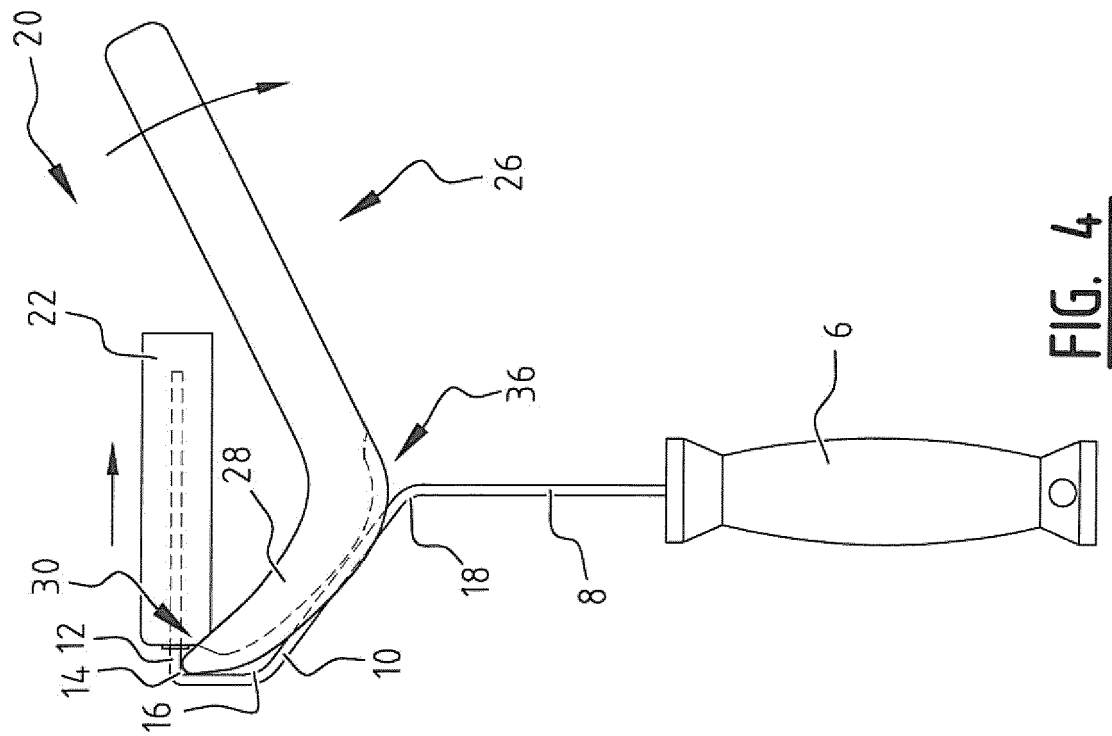


FIG. 4

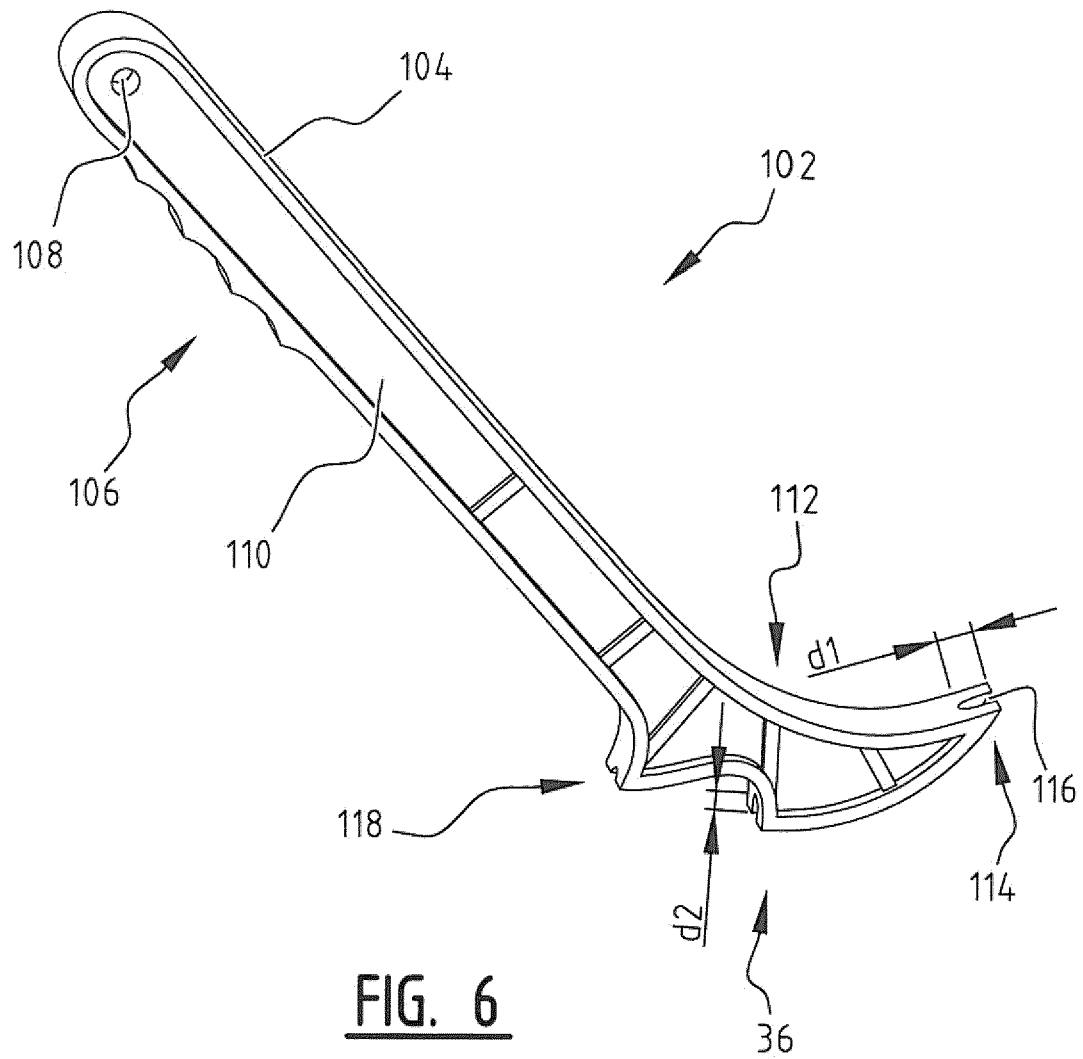


FIG. 6



EUROPEAN SEARCH REPORT

Application Number
EP 15 16 3544

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 2012/121587 A1 (BUCHHOLTZ R) 13 September 2012 (2012-09-13) * page 4, lines 28-34; figures *	1-13	INV. B05C17/02 B25G1/02 B25C11/00
A	US 2009/089952 A1 (SMITH ROBIN E [US] ET AL) 9 April 2009 (2009-04-09) * figure 3 *	1-13	
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A	BE 554 652 A (W. GORAY) 15 February 1957 (1957-02-15) * figure 1 *	1-13	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			B05C B25G B25C
Place of search		Date of completion of the search	Examiner
The Hague		31 August 2015	Popma, Ronald
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 15 16 3544

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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31-08-2015

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